

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of claims in the application.

1-16. (Cancelled)

17. (Currently Amended) A biomolecule interaction measuring method comprising the steps of:

providing a double-stranded oligonucleotide array comprising a background region on which a hydrophilic polymer molecule is immobilized and a region on which a plurality of double-stranded oligonucleotides are immobilized on a metal substrate, and

measuring the interaction between said double-stranded oligonucleotides and a biomolecule or aggregate thereof,

wherein each of said plurality of double-stranded oligonucleotides include a first single-stranded oligonucleotide and a second single-stranded oligonucleotide, said first and second single-stranded oligonucleotides being entirely or partially bonded together in a complementary manner to form said double-stranded oligonucleotide,

wherein among said first and second single-stranded oligonucleotides, only said first single-stranded oligonucleotide is bonded to said substrate,

wherein said biomolecule interaction measuring method utilizes surface plasmon resonance, and

wherein said first single-stranded oligonucleotide is bonded to said substrate by a cross-linking agent including a heterobifunctional hydrophilic polymer molecule expressed by a general formula of $X - R - Y$, wherein:

X is a functional group covalently bonded with a functional group on a surface of a solid surface or a functional group introduced to the surface of said solid surface;

Y is a functional group to be bonded to said first single-stranded oligonucleotide; and

R is a hydrophilic repeating unit expressed by $-(O - R_1)_n-$, wherein R_1 is an alkylene group and n is an integer number in the range of 4 to 450.

18. (Cancelled)

19. (Cancelled)

20. (Previously Presented) The method as defined in claim 17, wherein said double-stranded oligonucleotide array used in said measuring includes a marker indicative of a spot.

21. (Previously Presented) A biomolecule interaction measuring method comprising:

measuring the interaction between a first biomolecule and a second biomolecule or aggregate thereof by use of a substrate with a solid surface comprising a background region on which a hydrophilic polymer molecule is immobilized other than an area having said first biomolecule immobilized thereon,

wherein said first biomolecule is immobilized on said substrate by a cross-linking agent including a heterobifunctional hydrophilic polymer molecule expressed by a general formula $X - R - Y$, wherein:

X is a functional group covalently bonded with a functional group on a surface of a solid surface or a functional group introduced to the surface of said solid surface;

Y is a functional group to be bonded with said first biomolecule; and

R is a hydrophilic repeating unit expressed by $-(O - R_1)_n-$, wherein R_1 is an alkylene group and n is an integer number in the range of 4 to 450, and

wherein said biomolecule interaction measuring method utilizes surface plasmon resonance.

22. (Original) The method as defined in claim 21, wherein said heterobifunctional hydrophilic polymer molecule has a molecular weight of 200 to 20000.

23. (Cancelled)

24. (Original) The method as defined in claim 21, wherein said functional groups X and Y of said heterobifunctional hydrophilic polymer molecule are any two selected from the group consisting of an amino group, a carboxyl group, a succinimide group, a sulfonated succinimide group, a maleimide group, a thiol group, an aldehyde group, a vinyl group, an isocyanate group, an epoxy group, a hydrazine group and an azido group.

25. (Previously Presented) The method as defined in claim 21, wherein said solid surface comprises a thin gold layer formed on said substrate, said thin gold layer including a functional group which is introduced using a compound expressed by a general formula $X' - R' - Y'$,

wherein X' is a functional group reactive to said thin gold layer, Y' is a functional group to be bonded with said heterobifunctional hydrophilic polymer molecule represented by the general formula $X - R - Y$, and R' is an organic group.

26. (Original) The method as defined in claim 21, wherein said substrate includes plural kinds of said first biomolecules immobilized thereon in an array arrangement.

27. (Original) The method as defined in claim 21, wherein said first biomolecule is nucleic acid.

28. (Cancelled)

29. (Original) The method as defined in claim 21, wherein the interaction between said first biomolecule and said second biomolecule or aggregate thereof is measured through surface plasmon resonance imaging.

30. (Original) The method as defined in claim 21, wherein said second biomolecule is a protein.

31. (Original) The method as defined in claim 30, wherein said protein is a transfer factor.

Application No.: 10/756,767
Art Unit: 1634

Amendment
Attorney Docket No.: 032084

32. (Cancelled)

33. (Previously Presented) The method as defined in claim 21, wherein said measurement is performed using an array which includes a marker indicative of a spot.

34-42. (Cancelled)